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October 26, 2007

U.S. Environmental Protection Agency
Clerk of the Board, Environmental Appeals Board
Colorado Building
1341 G Street, N.W., Suite 600
Washington, D.C. 20005

Re: San Jacinto River Authority; NPDES Permit No. TX0054186

Dear Clerk of the Board:

Enclosed please find the original and five (5) copies of San Jacinto River Authority's Petition for Review of NPDES Permit Issued by Region 6 on September 28, 2007 and Motion to Supplement the Administrative Record. I am authorized to receive service relating to this proceeding. My contact information is:

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Thank you for your attention to this matter.

Sincerely,

Lauren Kalisek

Lauren Kalisek

LJK:tkj
1197/06/071024

Enclosures

cc: Mr. Miguel I. Flores
Mr. Reed Eichelberger
Mr. Don R. Sarich
Ms. Peggy Glass
Mr. Martin C. Rochelle

BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In re:	)	
	)	
San Jacinto River Authority	)	NPDES Appeal No.
	)	
NPDES Permit No. TX0054186	)	
	)	

PETITION FOR REVIEW OF NPDES PERMIT ISSUED BY REGION 6 ON SEPTEMBER 28, 2007

Submitted on Behalf of
the San Jacinto River Authority

By: Lauren Kalisek
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I. INTRODUCTION

In *Edison Electric Inst. v. E.P.A,* the Court of Appeals for the District of Columbia confirmed the reasonableness of the test method for Whole Effluent Toxicity testing ("WET") in the face of an industry challenge.[1] In upholding the method, however, the court made clear its understanding that individual WET test results "will be wrong some of the time."[2] It clarified that its opinion should not prevent individual permittees from challenging specific test results.[3] At the time the Court of Appeals was considering the *Edison Electric* case, Petitioner, the San Jacinto River Authority, was in the process of doing just that. It was successfully challenging two of its WET test results before the Texas Commission on Environmental Quality ("TCEQ") and a state administrative law judge ("ALJ") during the process of renewing its discharge permit.[4]

TCEQ Staff and representatives of the Environmental Protection Agency ("EPA"), Region 6 ("Region") had argued for the imposition of a WET limit for lethality based on

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[1] *Edison Electric Inst. v. E.P.A.,* 391 F.3d 1267 (D.C. Cir. 2004). As described in *Edison Electric*, and the Environmental Appeals Board's (the "Board") decision in *In Re Town of Ashland Wastewater Treatment Facility*, 9 E.A.D. 661, 662-663 at ftn. 3 (E.A.B. 2001), WET testing involves the exposure of a sample of treated effluent to aquatic organisms to measure the organisms' response and determine the toxic effect of the effluent. There are two types of WET tests—acute, which are conducted over a short period of time, usually 24 hours, measuring lethality; and chronic, which are conducted over a longer period of time, usually 7 days, measuring lethal and sublethal effects on growth and reproduction. The type of WET testing at issue in this appeal is the seven-day chronic testing on the *Ceriodaphnia dubia* (*"C. dubia"*) for lethality and reproduction (sublethality). *See* discussion at Part II.C.

[2] *Edison Electric Inst.,* at 1272.

[3] *Id.*

[4] Texas law grants permittees and other "affected persons" the right to an evidentiary hearing before the State Office of Administrative Hearings ("SOAH") on the TCEQ's decision to grant a discharge permit. TEX. WATER CODE ANN. § 26.028(c)(Vernon Supp. 2006). Such hearings involve the naming of parties, the establishment of a procedural schedule, discovery, submission of prefiled testimony, a live hearing before an administrative law judge during which parties are afforded the right to cross-examination of witnesses, the presentation of a rebuttal case; and final written closing briefs. 30 Tex. Admin. Code, Chapter 80 (West 2007).

reported lethal effects in Petitioner's November 2001 and January 2002 test results. Petitioner was able to show through an evidentiary hearing, in which the Region participated as an expert witness, that the test results were not reliable when reviewing the underlying bench sheets and dose response curves for the tests and the laboratories control charts, and considering the passing results obtained by another lab on a split sample of the January 2002 test.[5] The final decision of the ALJ and order issued by the TCEQ affirmed the invalidity of these test results.[6]

However, rather than accepting the decision of the TCEQ and the recommendation of the state ALJ, the Region, for the first time since delegation of the National Pollutant Discharge Elimination System ("NPDES") program to Texas in 1998, federalized a Texas permit. In so doing, the Region has now concluded that TCEQ's WET implementation policy, which it previously approved in November 2002 as protective of Texas Surface Water Quality Standards ("TSWQS"),[7] and on which the TCEQ's decision and state hearing were based, does not meet the requirements of federal regulations. Based on this reversal of its previous legal opinion, it has issued a final NPDES permit including both lethal and sublethal WET limits.

Pursuant to 40 C.F.R. § 124.19(a), Petitioner seeks the Environmental Appeals Board's ("Board") review of certain conditions of NPDES Permit No. TX0054186 which was issued on September 8, 2007 by the Region. The permit authorizes Petitioner's

[5] See discussion at Part II.A., pgs. 6-9.

[6] See discussion at Part II. A., pgs. 7-9.

[7] The Texas Surface Water Quality Standards are found at Title 30, Texas Administrative Code, Chapter 307 (West 2007).

discharge of treated effluent from its publicly owned treatment works ("POTW"), The Woodlands Wastewater Treatment Plant No. 1, to Panther Branch, and thence to Spring Creek, Classified Segment No. 1008 in the San Jacinto River Basin.[8] Petitioner brings this challenge to the Region's permitting decision because the Region's actions in this case are legally and factually erroneous and involve important policy considerations warranting review.[9] Of significance among these considerations is the recognition that if the Court of Appeals' decision in *Edison Electric* that permittees should be able to challenge WET test results is to have any meaning, the Region should not be allowed to thwart a successful challenge through the federalization process. Also, the question of under what circumstances the Region may deviate from permitting policies it previously determined to be protective of state surface water quality standards when it federalizes an individual permit, warrants review and careful consideration. In addition, Petitioner requests review of other permit provisions that are also erroneous and require review as discussed in detail herein.

II. FACTUAL AND STATUTORY BACKGROUND

A. Petitioner and Permit History

Petitioner is a river authority and political subdivision of the State of Texas created by the Texas Legislature pursuant to Article XVI, Section 59 of the Texas Constitution to control, store, preserve and distribute the waters of the San Jacinto River and its tributaries. It is also empowered to preserve and protect the sanitary condition

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[8] See U.S. Environmental Protection Agency, Region 6, NPDES Permit No. TX0054186 issued September 28, 2007 ("Final Permit") at Exhibit A .

[9] 40 C.F.R. § 124.19(a) (2006) (establishing the standards for the Board's review of NPDES permitting decisions).

of such water.[10] Its mission is to "develop, conserve, and protect the water resources of the San Jacinto River watershed."[11] It owns and operates three municipal wastewater treatment plants, one of which is The Woodlands Wastewater Treatment Plant No. 1 (the "Plant"). The Plant has an ultimate design capacity of 7.8 million gallons per day and serves residential and commercial development in the community of The Woodlands, Texas.

Prior to delegation of the NPDES program to the State of Texas pursuant to the Clean Water Act in 1998, all municipal dischargers in Texas operated under two separate permits: an NPDES permit issued by EPA in accordance with the Clean Water Act and a state permit issued by the predecessor agencies of the TCEQ pursuant to Chapter 26 of the Texas Water Code.[12] After 1998, discharge permits are now issued by the TCEQ as Texas Pollutant Discharge Elimination System ("TPDES") permits and include the requirements of both state and federal laws for that discharge.[13] In its Memorandum of Agreement with the TCEQ's predecessor agency regarding delegation, EPA agreed to the framework by which the TCEQ will draft and issue permits and specified the conditions under which it continues to oversee the program, including review and comment on certain permits and a procedure to withdraw federal authorization for a specific permit if its objections to the permit are not resolved by

[10] Tex. Civ. Stat. Ann. Art. 8280-121, § 2 (Vernon 1954); Act of June 16, 1991, 72nd Leg., R.S., ch. 698, § 8C, 1991 Tex. Gen. Laws (to be codified as an amendment of Tex. Civ. Stat. Ann. 8280-121).

[11] See Petitioner's website at http://www.sjra.net.

[12] 33 U.S.C. § 1342(a) (2001); TEX. WATER CODE ANN. § 26.027 (Vernon 2000).

[13] 33 U.S.C. § 1342(b) (2001); TEX. WATER CODE ANN. § 26.027 (Vernon 2000).

TCEQ (permit "federalization").[14] In addition, EPA has also approved the policies by which TCEQ implements the TSWQS in permitting—in essence the methods and procedures used by TCEQ in drafting TPDES permits – through its approval of the *Procedures to Implement the Texas Surface Water Quality Standards*, RG-194, Revised January 2003 ("Implementation Procedures").[15]

The permitting history of the Plant can be summarized by a review of the "Findings of Fact" in the order issued by the TCEQ at the conclusion of the state evidentiary hearing.[16] Since the original construction of the facility, Petitioner has operated the Plant under its federal NPDES permit issued in 1989 and its Chapter 26 state discharge permit.[17] In 1991, due to several WET test results indicating toxic effects from 1989 through 1991, Petitioner initiated a toxicity reduction evaluation ("TRE") to investigate possible causes of the toxicity.[18] In 1993, the Region first proposed inclusion of a WET limit in Petitioner's NPDES permit because of these earlier test results.[19] At that time, EPA's procedural rules allowed for evidentiary hearings on permit decisions, and Petitioner requested an evidentiary hearing on the imposition of a

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[14] *Memorandum of Agreement Between the Texas Natural Resource Conservation Commission and the U.S. Environmental Protection Agency, Region 6 Concerning the National Pollutant Discharge Elimination System,* September 14, 1998 ("MOA"). See Exhibit B.

[15] See Exhibit C. Page 1 notes that EPA approved the Implementation Procedures in November 2002 with some exceptions that are unrelated to this permitting action. The MOA provides that the Implementation Procedures are subject to EPA review and approval after delegation and that TPDES permits will be developed and issued in accordance with such approved procedures. MOA at p. 27.

[16] Tex. Comm'n Env. Quality, *Order Regarding Application by San Jacinto River Authority for Renewal of TPDES Permit No. 11401-001 in Montgomery County*, TCEQ Docket No. 2003-1213-MWD; SOAH Docket No. 582-04-1194 ("TCEQ Order") enclosed at Exhibit D.

[17] TCEQ Order at Finding of Fact ("FOF") Nos. 2, 5, p. 2.

[18] *Id.* at FOF 3, p. 2.

[19] *Id.* at FOF 4, p. 2.

WET limit. The Region never acted on Petitioner's request for such hearing and the terms of its 1989 NPDES permit remained in effect.[20]

In 1997, Petitioner filed an application for renewal of its state permit previously issued in 1995 (Permit No. 11401-001).[21] In June and July of 1998, Petitioner reported toxic effects in its WET testing, and Petitioner again instituted a TRE.[22] In September 1998, delegation of the NPDES program to the State of Texas was approved, and the TCEQ Executive Director took steps to update Petitioner's application to serve as a TPDES permit application.[23] The Executive Director then prepared a draft TPDES permit that did not contain a WET limit in late 2000.[24] Upon review, the Region requested the imposition of a WET limit, which was added by the Executive Director, and Petitioner protested such inclusion.[25] In June 2001, the Executive Director approved the closure of Petitioner's 1998 TRE because 12 months of testing showed a "cessation of lethality."[26] In late 2001, the Region approved the issuance of a TPDES permit without a WET limit; however, Petitioner's WET testing for November 2001 and January 2002 exhibited toxic effects.[27] The Executive Director prepared another revised draft permit to include a WET limit, and Petitioner requested an evidentiary

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[20] *Id.*

[21] *Id.* at FOF 6, p. 2.

[22] *Id.* at FOF 7, p. 2.

[23] *Id.* at FOF Nos. 8, 10, 11 pgs 2-3.

[24] *Id.* at FOF 12, p. 3.

[25] *Id.*

[26] *Id.* at FOF 14, p. 3.

[27] *Id.* at FOF Nos. 15-18, p. 3.

hearing because it did not believe that the November 2001 and January 2002 WET tests were reliable.[28] The draft permit was referred to SOAH and an evidentiary hearing was held February 7-9, 2005.[29] At the hearing, the Region participated through the appearance of its WET Coordinator, Phillip Jennings, as a witness on behalf of the Executive Director, who provided testimony and evidence and was subjected to cross-examination.[30]

Upon the close of the evidentiary hearing, the ALJ issued a 46-page PFD and recommended findings of fact and conclusions of law to the TCEQ, which were modified, and then adopted by the Commissioners of the TCEQ at a subsequent public hearing.[31] Based on the evidentiary record developed at the hearing, the ALJ and the TCEQ found that few permittees in Texas have performed as much WET testing as has Petitioner over the years.[32] They determined that the test results that gave rise to the TRE performed by Petitioner in the early 1990's were unrelated to the test results from 1998 and 2001-2002 and that this early toxicity problem was resolved by operational

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[28] *Id.* at FOF 19, p. 3.

[29] *Id.* at FOF 25, p. 4.

[30] State Office of Administrative Hearings, *Proposal for Decision*, SOAH Docket No. 582-04-1194 (TCEQ Docket No. 2003-1213-MWD) June 15, 2005 ("PFD") at p. 15 (see Exhibit E).

[31] See generally PFD (Exhibit E); TCEQ Order (Exhibit D). The ALJ prepares a written PFD summarizing and evaluating the evidence presented that is submitted to the TCEQ Commissioners including proposed findings of fact and conclusions of law. TEX. GOV'T CODE ANN. § 2003.047(m) (Vernon 2000). The TCEQ Commissioners consider the ALJ's proposal as contained in the PFD at a subsequent public hearing and may adopt it or substitute its own findings of fact and conclusions of law under certain conditions. *Id.* In this instance the Commissioners concluded that the ALJ incorrectly assigned the burden of proof in the evidentiary hearing to the Executive Director, but that the evidence presented at the hearing still preponderated in favor of the conclusion that the test results at issue were invalid and that a WET limit was not warranted.

[32] *Id.* TCEQ Order at FOF 64, p. 10.

and personnel changes at the facility.[33] They concluded that the TRE initiated due to the test results in 1998 was properly closed due to a "cessation of lethality" (meaning that testing ceased to demonstrate toxic effects and, therefore, no meaningful analysis can be performed).[34] With regard to the November 2001 and January 2002 test results that formed the primary basis of the Executive Director and the Region's imposition of a WET limit in Petitioner's permit, the ALJ and the Commission found the test results to be too unreliable for the following reasons:

- the November 2001 test was not carried out according to applicable test protocols;
- the testing laboratory's organisms were overly stressed as indicated in the reference testing;
- the dose-response relationships for both tests were non-monotonic;
- a split sample on the January 2002 test demonstrated no toxic effects; and
- in the month between the two tests, December 2001, split samples sent to two different labs demonstrated no toxic effects.[35]

Therefore, as recommended by the ALJ, the TCEQ determined that a WET limit was not necessary to maintain compliance with state surface water quality standards.[36]

The TCEQ issued a final order and permit in January 2006 without a WET limit.[37] The Region filed an objection to the State Permit, pursuant to the procedures of the MOA. The Region thereafter instituted the process to issue a separate NPDES permit

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[33] *Id.* at FOF 65, p. 10.

[34] *Id.* at FOF 68, p. 11; FOF 56.d, p. 9.

[35] *Id.* at FOF Nos. 70-81, pgs. 11-12.

[36] *Id.* at FOF 85, p. 13.

to Petitioner. Petitioner timely filed an application with the Region on June 2, 2006, and provided subsequent information and data as requested by the Region. The Region issued a draft permit on December 7, 2006, and Petitioner filed its comments to such draft permit on February 19, 2007, in conformance with 40 C.F.R. §§ 124.11;.13.[38] The Region issued its response to comments and the Final Permit on September 28, 2007[39], and Petitioner now files this request for review.

The Region has issued a Final Permit containing both lethal and sublethal WET limits based, it says, "primarily" on Petitioner's *sublethal* test results.[40] In order to reach this result, it has determined that the Implementation Procedures it previously approved as protective of state surface water quality standards controlling toxicity do not meet federal requirements[41]— even though such procedures have not changed since their original promulgation in 2002 when the Region approved them. The evidentiary hearing before the ALJ and the TCEQ's final decision were based on the policies laid out in the Implementation Procedures that focus on control of toxicity through review of test results for *lethal* effects and the imposition of WET limits for *lethality*.[42] Under the Implementation Procedures, as applied to the facts of that case, it would have been

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[37] *Id.* at Ordering Provision 2.a, p. 16; see also attached TPDES Permit No. 11401-001 ("State Permit").

[38] *See* U.S. Environmental Protection Agency, Region 6, Draft NPDES Permit No. TX0054186, ("Draft Permit") and accompanying Fact Sheet ("Fact Sheet") issued December 7, 2006 (Exhibit F); Comments by San Jacinto River Authority Draft NPDES Permit No. TX0054186 Woodlands Wastewater Treatment Plant No. 1, February 19, 2007 ("Petitioner's Comments") at Exhibit G.

[39] *See* U.S. Environmental Protection Agency, Region 6, NPDES Permit No. TX0054186 Response to Comments, issued September 28, 2007 at Exhibit H.

[40] Fact Sheet, p. 11 (Exhibit F).

[41] RTC pgs. 29, 31-35.

[42] TCEQ Order FOF Nos. 55-56, pgs. 8-9; PFD pgs. 35-36, 42.

appropriate to impose a WET limit in Petitioner's permit for *lethality* only if it were shown that the November 2001 and January 2002 results for *lethality* were valid.[43]

Because Petitioner successfully proved such results were invalid at the State level, in accordance with the TCEQ policies the Region had approved, the Region has now inappropriately changed the applicable policies upon federalization of the permit to include review of sublethal test results as a basis for imposition of WET limits for lethality and sublethality. The Region has also incorporated various other permit provisions that it fails to adequately support, are unreasonable, are not in conformance with applicable agency permitting policies or procedures, or are otherwise not supported by the underlying facts and law, as described in detail in Part IV herein.

B. Applicable Federal Regulations, State Water Quality Standards, and Implementation Procedures

The Region's permitting decision in this case, of which Petitioner seeks review, is generally governed by the following federal regulations, state water quality standards and implementation procedures. 40 C.F.R. § 122.44(d)(1)(v) provides that when a permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to an instream excursion above a narrative criterion within an applicable state water quality standard, the permit must contain limits for whole effluent toxicity. The TCEQ has adopted the TSWQS that establish such narrative criteria for toxicity which generally prohibit chronic toxicity to aquatic life in waters with aquatic life uses.[44] In addition, the TCEQ has adopted the Implementation Procedures, also

[43] PFD pgs. 35-36; 40-41; Implementation Procedures, pgs. 112-113.

[44] 30 Tex. Admin. Code § 307.6(b)(2)(2007).

approved by EPA in 2002, that provide the process to be used in conjunction with the "reasonable potential" determination required by 40 C.F.R. § 122.44(d). This process includes imposition of WET testing requirements for facilities of a certain size; retesting if a test indicates lethal effects and commencement of a TRE if the retest also shows lethal effects.[45] If a TRE fails to identify a toxicant, the permit may be amended to include a WET limit for lethality.[46] A WET limit for lethality may also be included in a permit upon the report of a test and a retest indicating lethal effects following the closure of a TRE for cessation of lethality.[47]

C. WET Testing

The type of WET testing at issue in this appeal is chronic WET testing on the *C. dubia*. In the test, ten organisms, with one organism placed in each beaker, are exposed to dilutions of effluent with lab water. [48] Five different dilutions are used during the test with one dilution designated as the "critical dilution" to approximate the actual concentration of effluent in the receiving stream at critical low flow conditions.[49] The test compares survival rates (lethality) and reproduction rates (sublethality) for the 10 replicates in each dilution to a control (organisms exposed to no effluent).[50] The test is

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[45] Implementation Procedures, pgs. 101-125.

[46] The Implementation Procedures clearly indicate that the imposition of a WET limit is only appropriate for demonstrations of "persistent significant lethality" at the conclusion of a TRE failing to identify a toxicant, where a chemical specific limit or best management practice would be inadequate, or after closure of a TRE for cessation of lethality and the effluent again demonstrates "persistent, significant lethality" to the same species within a five year period. *Id.* at pgs. 112-113.

[47] *Id.*

[48] PFD pgs. 5-8. The PFD provides a good summary of the WET test method.

[49] *Id.*

[50] *Id.*

run over seven days. A test reports toxic effects if there is a "statistically significant difference" between survival or reproduction rates measured at the critical dilution with those of the control.[51] A testing laboratory uses a statistical software package to run the statistical analysis. The use of a dilution series provides data for the creation of a "dose response curve" to illustrate the degree of toxic effect as compared to the effluent concentration. Higher effluent concentrations are generally expected to cause a greater degree of mortality and reproduction impairment and lower concentrations to have lesser impacts – a monotonic dose-response. Non-monotonic dose-response curves that do not follow this pattern warrant additional review to confirm test validity, although EPA guidance accepts certain types on non-monotonic results.[52]

III. THRESHOLD PROCEDURAL REQUIREMENTS

As discussed previously, the Region issued a draft permit on December 7, 2006. Petitioner timely filed its comments on the draft permit on February 19, 2007.[53] The Region issued its RTC and Final Permit on September 28, 2007, and Petitioner files this appeal with the EAB requesting review of certain portions of the Final Permit as set forth herein within 30 days in conformance with 40 C.F.R. § 124.19(a). All issues presented by Petitioner herein were raised in its initial comments on the Draft Permit and are summarized below and include citations to its initial comments. Any new arguments made herein are in response to new arguments and statements made by the Region in the RTC.

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[51] *Id.*

[52] *Id.*

IV. SUMMARY OF ERRORS BY REGION

A. Standard of Review and List of Issues

The Board will generally not grant review of petitions filed under 40 C.F.R. § 124.19(a) unless it appears from the petition that the permit condition at issue is based on a clearly erroneous finding of fact or conclusion of law or involves an important policy consideration that the Board, in its discretion, should review.[54] While the Board has broad power to review decisions under section 124.19, this power is to be exercised "only sparingly."[55]

Agency policy favors final adjudication of most permits at the Regional level.[56] On appeal to the Board, a petitioner bears the burden of demonstrating that review is warranted.[57] Section 124.19(a) requires that a petitioner both state the objections to the permit that are being raised for review and explain why the permit decisionmaker's previous response to those objections (i.e., the decisionmaker's basis for the decision) is clearly erroneous or otherwise warrants review.[58]

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[53] The Region granted Petitioner's request for an extension of time to file its comments due to the holiday period and complexity of issues involved in this proceeding.

[54] 40 C.F.R. § 124.19(a) (2006); *see also In re Gov't of D.C., Mun, Separate Storm Sewer Sys.*, 10 E.A.D. 323, 332-33 (EAB 2002) (hereinafter "*D.C. MS4*"); *In re City of Moscow, Idaho*, 10 E.A.D. 135, 140-41 (EAB 2001) (hereinafter "Moscow"); *In re City of Irving, Tex. Mun. Separate Storm Sewer Sys.*, 10 E.A.D. 111, 122 (EAB 2001) (hereinafter "*Irving MS4*").

[55] 45 Fed. Reg. 33,290, 33,412 (May 19, 1980); *see also D.C. MS4*, 10 E.A.D. at 333; *Moscow*, 10 E.A.D. at 141; *In re Rohm & Haas Co.*, 9 E.A.D. 499, 504 (EAB 2000).

[56] 45 Fed. Reg. at 33,412; *see also D.C. MS4*, 10 E.A.D. at 333; *Moscow*, 10 E.A.D. at 141; *Irving MS4*, 10 E.A.D. at 122; *In re New England Plating Co.*, 9 E.A.D. 726, 730 (EAB 2001).

[57] *D.C. MS4*, E.A.D. at 333; *see also Moscow*, 10 E.A.D. at 141; *In re Haw. Elec. Light Co.*, 8 E.A.D. 66, 71-72 (EAB 1998).

[58] *See In re South Shore Power, LLC*, PSD Appeal No. 03-02, slip op at 10 (EAB June 4, 2003); *In re Caribe Gen. Elec. Prods.*, 8 E.A.D. 696,710 (EAB 2000).

In addition, the Board traditionally assigns a heavy burden to petitioners seeking review of issues that are essentially technical in nature.[59] When the Board is presented with technical issues, it determines whether the record demonstrates that the Region duly considered the issues raised in the comments and whether the approach ultimately adopted by the Region is rational in light of all the information in the record.[60] The Region's rationale for its conclusions, however, must be adequately explained and supported in the record.[61]

In this appeal, Petitioner raises significant issues regarding conditions of the Final Permit that are clear errors by Region 6 warranting review when applying the above principles. These issues include : (1) the Region's imposition of WET limits for lethality and sublethality for *C. dubia* in contravention of both the evidentiary record developed in the state evidentiary hearing process and the Implementation Procedures it previously approved as protective of TSWQS; (2) inclusion of a definition of "No Observed Effects Concentration" ("NOEC") that is inconsistent with the definition previously approved by the Region and is inconsistent with current EPA guidance; (3) definition of a permit violation based on a single WET test result rather than using a median approach that accounts for variability in test results; (4) rejection of the use of an IC_{25} value in lieu of NOEC to report WET test results; (5) inclusion of a limit for E. coli

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[59] *Moscow*, 10 E.A.D. at 142; *see also In re Town of Ashland Wastewater Treatment Facility*, 9 E.A.D. 661, 667 (EAB 2001).

[60] *D.C. MS4*, 10 E.A.D. at 334.

[61] *Id.* at 342-43 ("Without an articulation by the permit writer of his [or her] analysis, we cannot properly perform any review whatsoever of that analysis and, therefore, cannot conclude that it meets the requirement of rationality.")

rather than imposition of a monitoring requirement where there is no evidence that such a limit is necessary; (6) inclusion of a monitoring requirement for copper based on a single data point; (7) failure to adjust the definition for 24-hour composite sampling that allows sampling time to vary according to flow; and (8) failure to carry forward agreed changes regarding (i) the annual sludge report provisions; (ii) the critical dilution for WET testing and (iii) revisions to defined terms used in WET testing requirements into the Final Permit. Each of these issues is discussed in detail below, along with citations to the relevant original comments by Petitioner and the Region's RTC.

B. WET Limits

Petitioner objects to and requests review of Part I, Section A, 1. Final Effluent Limits, Whole Effluent Toxicity Limit, Ceriodaphnia dubia, including n. 11, p. 2 and Part I, Section B. p. 3 of the Final Permit which provide for the imposition of WET limits for lethality and sublethality with a three-year compliance period. Petitioner's initial comments on this issue are found at Petitioner's Comments pgs. 10-13 and the Region's response is found at RTC pgs. 27-35; 36-37.

The Final Permit contains WET limits for lethality and sublethality. In the Fact Sheet at page 11, the Region explained that it believes that reasonable potential exists for discharges from the facility to cause or contribute to an exceedance of "Texas water quality standard and narrative criterion established to protect aquatic life." Page 10 of the Fact Sheet also states that WET test results submitted by Petitioner as a part of the Application were analyzed using EPA's "Technical Support Document for Water Quality

Based Toxics Control" (TSD)[62] and EPA Region 6's "WET Permitting Strategy" (May, 2005). The Region noted that all data were reviewed and "the majority" of the data were found to be acceptable. It concluded that the "duration and magnitude of the effluent's toxic effects have been significant." It stated that the WET limits contained in the Draft Permit are "based primarily on sub-lethal effects demonstrated to the *C. dubia* test species." Appendix B of the Fact Sheet contains the "TSD Reasonable Potential Analysis."

In response to the information provided in the Fact Sheet, Petitioner commented that the Region's inclusion of the WET limit for lethality directly conflicts with the TCEQ's findings of fact and conclusions of law and the Implementation Procedures previously approved by the Region. Indeed, the state evidentiary hearing was based on facts elicited under oath from expert witnesses, including the Region's expert, and the Implementation Procedures implementing WET policy in Texas permits. Such provisions, approved by the Region in 2002, call for the imposition of WET limits for lethality based on test results showing lethal effects and only after a permittee has conducted a TRE that was not successful in identifying a toxicant, or where a TRE has been closed when monthly testing demonstrated no lethal effects for 12 consecutive months and a permittee reports a subsequent lethal effect confirmed by a retest.[63] In the state evidentiary hearing, it was determined that a WET limit for lethality was not warranted based on review of test results for lethal effects that were at issue in that case in accordance with the Implementation Procedures. Here, the Region is basing the

[62] U.S. Environmental Protection Agency, Office of Water, *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-000, 2nd Printing, TSD.

imposition of a WET limit "primarily" on Petitioner's *sublethal* data in direct contravention of the Implementation Procedures.[64]

Therefore, Petitioner commented that the Region's failure to abide by the written policy it approved in the Implementation Procedures was arbitrary and capricious. It also commented that the Region failed to explain how TCEQ erred in its application of governing laws, regulations or EPA approved policies, such as the Implementation Procedures, or its interpretation of the facts regarding Petitioner's WET testing data. Petitioner commented that although the Region cites to the Implementation Procedures throughout the Fact Sheet as a basis for other permit provisions, it ignores them with respect to its WET analysis. Petitioner further explained that the "reasonable potential" review mandated by 40 C.F.R. § 122.44(d)(1)(v) is found in the Implementation Procedures, rather than the TSD Reasonable Potential Calculation contained in Appendix B of the Fact Sheet because this is the specific policy for Texas that the Region previously approved.

The Region responds to these arguments in the RTC by stating that the Implementation Procedures are non-binding guidance only and fail to ensure compliance with the TSWQS. It further argues that the PFD and TCEQ Order are incorrectly based on the Implementation Procedures. The Region goes on to explain that the Implementation Procedures do not meet federal regulations because they are not predictive and not sufficient to prevent sublethal effects in the stream. Therefore,

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[63] See Part II.B.; discussion of WET provisions of Implementation Procedures.

[64] The Region notes on page 32 of the RTC that even if it discounts the November 2001 and January 2002 test results for lethality that were found to be unreliable by the ALJ and the TCEQ Commissioners, "reasonable potential" still exists warranting WET limits based on Petitioner's sublethal test results.

the Region apparently has reversed its 2002 determination that the WET policy, contained in the Implementation Procedures, is in fact, protective of TSWQS.

There are several policy issues and legal and factual errors raised in the Region's response that merit review by the Board as set out below.

1. The Region's reversal of its previous determination regarding the legality of the WET policy contained in the Implementation Procedures lacks an adequate explanation and is, therefore, arbitrary and capricious.

This reversal of the Region's position with regard to the adequacy of Texas' WET policy as contained in the Implementation Procedures is a significant policy decision warranting review by the Board. The Region has completely reversed its interpretation of 40 C.F.R.§ 122.44(d) requirements as they apply to the Implementation Procedures, without an adequate explanation for such a departure. This conduct constitutes arbitrary and capricious agency action. [65] The Region has failed to explain how its legal evaluation of the WET policy included in the Implementation Procedures at the

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[65] See *Ohio Valley Environmental Coalition v. Horinko*, 279 F.Supp.2nd 732, 762 (S.D. W.Va. 2003). In considering a challenge to EPA's approval of the State of West Virginia's implementation procedures for antidegredation review, including the exemption of activities under general Section 402 and 404 permits, the district court noted that although EPA has discretion to change its interpretation of its regulations, there is a "presumption that an agency's policies will be carried out best if the settled rule is adhered to" and that an agency "must justify its change of interpretation *with a reasoned analysis* for that change." *Id.* (emphasis added). Because EPA failed to adequately explain the change in its position from 2000 that it is not possible to conduct a Tier 2 antidegredation review when a general permit is issued prior to the identification and evaluation of specific discharges into specific waters to an acceptance that such review is possible when it approved West Virginia's implementation procedures in November, 2001, the court held that EPA's approval of that section of West Virginia's procedures was arbitrary and capricious. It vacated the agency's decision and remanded the matter back to the agency for further consideration based on its opinion. *Id.* at 777. Similarly, the Region here has changed its interpretation that the Implementation Procedures it previously approved for the State of Texas are consistent with the requirements of Section 122.44(d)'s "reasonable potential" analysis without an adequate justification. Such action, as noted by the court in *Ohio Valley*, is arbitrary and capricious action. *See also, Atchison, T. & S. F. Ry. Co. v. Wichita Bd. of Trade*, 412 U.S. 800, 808, 93 S.Ct. 2367 (1973) (holding that an agency may "repudiate prior norms, may narrow zone in which some rule will be applied, or may determine that rule not be applied in particular case, but whatever the ground for departure from prior norms, the agency

time they were approved in 2002 was flawed and what circumstances have changed since 2002 warranting such a reversal. Without such an explanation, the agency's action should not be allowed to stand.

Indeed, the only plausible explanation for the Region's reversal at this late date is that the effort to impose WET limits in Petitioner's permit at the State level failed, and therefore, the Region must change its interpretation of the applicable regulations and policies to support its desired outcome of the imposition of WET limits in the Final Permit. The Region had every opportunity prior to and during TCEQ's consideration of the TPDES permit and the hearing before SOAH to argue that the Implementation Procedures should not be used because they do not meet federal regulations. However, the Region's representative made no mention of this at the hearing. This failure to raise such a fundamental issue at the state hearing undercuts the credibility of the Region's response now and confirms the arbitrary and capricious nature of its action.

2. The Region's reversal of its previous determination regarding the legality of the WET policy contained in the Implementation Procedures only after Petitioner successfully challenged the validity of its test results at the state evidentiary hearing is arbitrary and capricious.

The Region's action in federalizing the permit and changing the policy at the center of its permitting decision with regard to WET limits renders the TCEQ permitting process and the rights afforded permittees by Texas law to an evidentiary hearing on permitting decisions meaningless. Such action thwarts the intent of the delegation of

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must explain its departure so that the reviewing court may understand the basis of the agency's action and judge the consistency of that action with the agency's mandate").

federal programs, like the NPDES program and the entire permitting process under the Clean Water Act, if the Region may simply reverse its legal interpretations to fit a desired outcome regardless of action taken at the state level. Such action is offensive to the fundamental principles of fairness in the administrative process.

In addition, the Region's action in this case is in direct contravention of the federal district court's decision in *Edison Electric* that permittees should be able to challenge individual test results.[66] The Region's federalization of the permit and imposition of WET limits based on revisions to applicable WET policies has effectively nullified Petitioner's successful challenge to the validity of its test results in the state evidentiary hearing. It has precluded the very process that the *Edison Electric* court determined should be available to permittees. Such action is arbitrary and capricious and should be reversed.

3. The Region's response that WET limits are required to ensure compliance with TSWQS is incorrect and constitutes legal error where such standards only call for implementation of a WET limit at the conclusion of a TRE.

In response to Petitioner's argument that sublethal test results are not an appropriate basis to impose WET limits and that the Region provides no justification for deviation from the Implementation Procedures, the state evidentiary hearing and the TCEQ Order, the Region argues that the state evidentiary record and TCEQ Order are incorrectly based on the Implementation Procedures. It argues that the correct basis of its permitting decision is the "Texas Water Quality Standard."[67] However, it is the Region's approach that is inconsistent with the TSWQS. The TSWQS include specific

[66] *Edison Electric Inst.* at 1272.

provisions with regard to WET. They state, in pertinent part, that "chronic total toxicity", as determined from biomonitoring of effluent samples, will be precluded in all water in the state with existing or designated aquatic life uses and that dischargers whose effluent has a significant potential for exerting toxicity in receiving waters will be required to conduct whole effluent toxicity biomonitoring at appropriate dilutions.[68] The TSWQS go on to note that if toxicity biomonitoring results indicate that a discharge is exceeding the restrictions on total toxicity, then the permittee shall conduct a toxicity identification evaluation and toxicity reduction evaluation in accordance with permitting procedures of the commission.[69] As a result of a toxicity reduction evaluation, the TSWQS recognize that additional conditions may be established in the permit.[70] Such conditions may include total toxicity limits, chemical specific limits, and/or best management practices designed to reduce or eliminate toxicity.[71] Therefore, the TSWQS themselves establish the procedure to be followed prior to the imposition of WET limits in a permit—they are only to be imposed "as a result of a toxicity reduction evaluation" (TRE).

Consequently, the Region's response is legally flawed in failing to recognize that the TSWQS themselves establish the very procedure of which the Region, in part, objects—the imposition of WET limits after a TRE, rather than on the basis of sublethal test results without a TRE, as the Region has done in the Final Permit. In this case, the Region has imposed WET limits on the basis of sublethal test results that have never

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[67] RTC at p. 34.

[68] 30 Tex. Admin. Code §§ 307.6(e)(1); 307.6(a)(2)(A)(2007).

[69] *Id.* at § 307.6(a)(2)(D).

[70] *Id.*

been the subject of a TRE as mandated by the TSWQS. Previous TREs performed by Petitioner were based on lethal test results. The Region's action is not in compliance with the very TSWQS that it identifies as the appropriate governing authority in this permitting action in its RTC.

4. The Region's new position that the Implementation Procedures are not protective of TSWQS is incorrect and constitutes legal error.

The Region's response is also legally flawed in failing to explain why the enhanced monitoring and TRE work outlined in the Implementation Procedures in response to sublethal effects cannot serve to control toxic impacts and are not protective of the TSWQS, as the Region previously concluded when it formally approved the procedures. To support the TSWQS, the Implementation Procedures provide for monitoring for chronic lethal and sublethal effects and incorporate the TSWQS provisions that call for a permittee to conduct a TRE for lethal or sublethal effects, in those cases where TCEQ specifically determines that the sublethal test results are such that a TRE is warranted. This serves as an effective control on toxicity in the stream.[72] Under a TRE, a permittee conducts more frequent and enhanced testing to determine the cause of any observed effects and how to reduce or eliminate the effects. The results are reported to the TCEQ. The TCEQ may then issue a permit that requires the permittee to institute Best Management Practices, includes a chemical-specific limit to control any identified toxicant, or includes a WET limit for lethality, as

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[71] *Id.*

[72] See Part II.B. discussion of Implementation Procedure requirements.

outlined in the TSWQS.[73] The differences between the Implementation Procedures and the Region's permitting decision in this case are that, pursuant to the Implementation Procedures, sublethal effects are not used to impose WET limits for lethality; and WET limits for lethality are imposed only after the opportunity for a TRE.

The approach taken by the Implementation Procedures with regard to sublethal WET testing and limits is supported by the understanding of many technical experts in this field that the sublethal effects exhibited in WET testing are highly variable. Sublethal testing reports subtle reproductive or growth responses of living organisms, and different individual organisms respond differently to the same exposure conditions. The difficulties with regard to sublethal WET testing are underscored by the Region's own discussion in its RTC of the results of chemical analyses where test results are at or near the method detection limit. The Region notes that, while the median value reported would be "no detection," a few laboratories would report values greater than the median value.[74] In chemical analyses for parameters for which the permit limit is near the method detection limit, the risk of reporting a false positive value is reduced by establishing a minimum quantification level, as is done for copper in Part II.F of the Final Permit. The minimum quantification level is the level at which the variability of the test is minimized so that typically, most false positive results are precluded. The variability of a sublethal test effect based on a No Observed Effects Concentration ("NOEC") endpoint, particularly for a critical dilution that contains a high percentage of effluent as included in the Final Permit, is similar to chemical analyses near the method detection limit. Therefore, it is inappropriate to establish permit limits based on a sublethal NOEC

[73] *Id.*

value. That the Implementation Procedures provide for monitoring and TREs for persistent sublethal test results, but do not call for the imposition of sublethal WET limits, or limits for lethality based on sublethal results, are clearly reflective of these concerns and such measures are certainly reasonable. TSWQS provisions prohibiting sublethal toxicity are still addressed through the sublethal monitoring and TRE requirements. The Region's response includes no discussion of actual instances where chronic sublethal toxicity has been observed in a receiving stream in Texas that would warrant a change in the policy outlined in the Implementation Procedures. Nor does the Region explain how WET limits for sublethality, as opposed to enhanced monitoring and TRE requirements established in the Implementation Procedures, are the *only* effective means of controlling sublethal toxicity and maintaining the TSWQS. Finally, the Region fails to explain how reported sublethal effects mandate a WET limit for lethality. Therefore, the Region's legal conclusion that the WET policy contained in the Implementation Procedures is not protective of TSWQS is clearly erroneous.

5. The Region has factually erred in misrepresenting the discussion in EPA guidance regarding the amount of time necessary for a stream to recover from sublethal toxic events.

In addition, in support of its imposition of WET limits, including sublethal WET limits, the Region concludes in the Fact Sheet that the "duration and magnitude of the effluent's toxic effects have been significant." Petitioner commented that the Fact Sheet provided no explanation supporting this conclusion, including any discussion of how the Petitioner's test results indicate a length of time or duration of the alleged toxic effects or how such test results indicate the magnitude of the effects to be significant. The Region

[74] RTC p. 49.

responded the "duration (frequency) of toxicity relates to the period between toxic events." It argues that where toxic events occur more frequently than once per three years, the stream cannot recover from the effects of one event before the next toxic event occurs and cites the TSD for authority for this proposition.

The Region's response is flawed in that it misrepresents the conclusions of the TSD with respect to sublethal toxicity. Appendix D of the TSD includes a discussion of general considerations for establishing the allowable frequency of excursions of water quality criteria.[75] The TSD identified a study by Niemi *et al*[76] that reviewed more than 150 case studies of freshwater systems that were impacted by a disturbance that caused death or displacement of organisms in the aquatic system. The study only reviewed instances where severe impacts such as death occurred because it was difficult to determine if less severe impacts were within a normal intensity range for stream impacts. According to the TSD, effects from short-term disturbances evaluated in the Niemi study lasted less than two years, generally. Based on the study, the TSD concluded that acutely toxic (that is, lethal) excursions of the criteria should not occur more than once every three years. In Appendix D of the TSD, the EPA specifically declined to provide any maximum frequency for non-lethal excursions. Therefore, the Region's general proposition regarding a three-year recovery period cannot be directly applied to sublethal toxicity concerns.

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[75] Appendix D, pgs. D-4, D-5, enclosed at Exhibit I.

[76] Niemi, G.J., P. DeVore, N. Detenbeck, D. Taylor, J.D. Yount, A. Lima, J. Pastor, and R.J. Naiman. 1989. "An Overview of Case Studies on Recovery of Aquatic Systems from Disturbance." Ed. J.D. Yount

C. Definition of NOEC

Petitioner objects to and requests review of Part II Items D.1.b. at p. 3, D.2., and D.2.a.(i-iii) at p. 4; and D.6.a. at p. 10; Part II Item E.1.b. at p. 11 and E.1.c. at p. 12 of the Final Permit which provide the definition of the "No Observed Effects Concentration" or "NOEC" for chronic WET testing. Petitioner's initial comments on this issue are found at Petitioner's Comments pgs. 14-15 and the Region's response is found at RTC pg. 47.

The Draft Permit defined NOEC as the "greatest effluent dilution at *and below* which lethality that is statistically different from the control (0% effluent) at the 95% confidence level does not occur." (emphasis added). The Draft Permit went on to define a chronic lethal test failure as a "demonstration of a statistically significant lethal effect at test completion to a test species *at or below* the critical dilution." It defined a chronic sublethal test failure as a "demonstration of a statistically significant sublethal effect (i.e., growth or reproduction) at test completion to a test species *at or below* the critical dilution." In addition, it defined a WET limit violation as occurring when "the effluent fails a test endpoint *at or below* the critical dilution."

Petitioner commented that NOEC should not be retained as the endpoint for chronic tests. However, if it is, Petitioner explained that the definition in the Draft Permit must be revised. The NOEC definitions, and all permit provisions dependent on a determination of NOEC, should be revised to delete the phrases "and below" and "or below."[77] This definition is inconsistent with EPA's own guidance which contains the

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and G.J. Niemi. *In Recovery of Lotic Communities and Ecosystems from Disturbance*: Theory and Applications. Environ. Management (submitted).

[77] Petitioner's Comments p. 15. Petitioner's Comments inadvertently omitted the alternative phrase also used by the Region in its definition of "or below."

official definition of NOEC and the current definition used by the TCEQ in TPDES permits.[78]

Petitioner explained that the Region's inappropriate NOEC definition substantially increases the risk of having to report a test as exhibiting toxicity when it would be inappropriate to do so. It argued that NOEC should be defined in accordance with EPA's own guidance. It noted that at one time TCEQ included the phrase "or below" in the definition of NOEC in TPDES permits. A revision to the definition was negotiated in 2004 with both TCEQ and the Region. The revised definition deleted the phrase "or below," in accordance with EPA guidance. Both TCEQ and the Region approved the revision.[79] Petitioner argued that it is not appropriate for EPA now to include this incorrect definition in the Draft Permit.

The Region responds that its definition is "not incorrect" and that the definition of NOEC in EPA's Method Manual is no longer applicable because such definition was based on a linear dose response curve whereas now, EPA accepts several non-linear dose-response curves. The Region also responds that NPDES permits issued by the Region and its other states began "using the phraseology in [its] standard permit language to ensure data is reported accurately."[80] The Region seems to be concerned that some permittees may report tests as passing at the highest effluent dilution tested even if the effluent demonstrated toxic effects at every other effluent dilution tested. Its

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[78] U.S. Environmental Protection Agency Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, October 2002 ("Method Manual") (see excerpt at Exhibit J at p. 37, Section 9.1.1.2.).

[79] *See* email correspondence from Phillip Jennings, EPA, to Mike Pfeil, TCEQ, dated April 29, 2004, at Attachment D to Petitioner's Comments.

[80] RTC. P. 47.

response goes on to encourage permittees to seek review of test results showing non-linear dose responses.

The Region's action with regard to the NOEC definition should be reviewed because it fails to fully consider Petitioner's Comments; it is arbitrary and capricious because it is in conflict with a previous determination without adequate justification; is legally flawed because it is inconsistent with EPA guidance, including the Method Manual; and is an important policy consideration that can have significant impacts to permittees subject to WET testing.

1. The Region failed to fully consider Petitioner's Comments that it had previously approved the correct definition of NOEC.

The Region's response is insufficient in that it completely fails to address Petitioner's original comment that the Region has previously approved use of a definition of NOEC as the greatest effluent dilution "at which" toxic effects are not demonstrated. This approval was provided during negotiations between the Region and TCEQ staff in April, 2004 regarding standard permit provisions on WET testing and NOEC issues.[81] The Region fails to explain why it now disagrees with its previous approval and finds it necessary to once again change the standard permit language for Texas. The same issues raised in its response in the RTC were in existence at the time of its approval of the standard language for Texas. The Region fails to explain why these issues are somehow more compelling now and what has changed in three years other than the passage of time.

[81] *Id.*

2. Because it is in conflict with previous agency determination without adequate justification, the Region's NOEC definition in the Final Permit is arbitrary and capricious.

As noted above, the Region previously approved a definition of NOEC as the dilution "at which" toxic effects are not demonstrated, rather than "at and below" or "at or below" as contained in the Final Permit. As discussed in Part VI.B above, a reversal of an agency's previous regulatory interpretation without adequate explanation is arbitrary and capricious. The Region should explain why it approved such a definition in 2004 and the reason for its departure in this permitting action.

3. The Region's NOEC definition is legally flawed because it is not in conformance with applicable agency guidance.

The Method Manual defines NOEC as "the highest concentration of toxicant to which organisms are exposed in a full life-cycle or partial life-cycle (short-term) test, that causes no observable effects in the test organism (i.e., the highest concentration of toxicant in which the values for the observed responses are not statistically significantly different from the controls)."[82] This definition only covers a single concentration, rather than multiple dilutions that would be included in the Region's definition.

In its Response, the Region acknowledges that the definition in the permit is different from this official definition. It attempts to justify this by reference to another EPA document, the *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing.*[83] However, this document does *not* propose to address non-

[82] Method Manual p. 37.

ideal dose-response curves by changing the definition of NOEC but, rather, frequently states that point estimation techniques are a better way to address this problem. Point estimation techniques should address the Region's concern that a permittee could fail all but the highest effluent concentration (a highly unusual occurrence) and still pass the test.

In addition, the Method Manual, which contains the official definition of NOEC, was issued in 2002 after the Guidance Document in 2000. The authors of the Method Manual did not choose to modify the definition of NOEC as the way to address non-ideal dose-response curves as discussed in the Guidance Document. Therefore, the Region's argument that the NOEC definition contained in the Method Manual should be modified to address the concerns discussed in the Guidance Document is without merit.

4. The Region's NOEC definition is an important policy decision warranting review because it will have significant impacts for permittees subject to WET testing.

If the NOEC definition in the Final Permit is retained, a permittee will be unable, in some instances, to interpret test results in accordance with the Guidance Document. One of the examples in the Guidance Document addresses the case where a significant toxic effect is bracketed by non-significant effects.[84] The Guidance Document provides that, if other evaluations confirm the validity of the test, the lower concentration of effluent that exhibited a significant effect ". . . should be considered anomalous, and the NOEC should be determined as the highest concentration that was not significantly

[83] U.S. Environmental Protection Agency, Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing, EPA 821-B-00-004, July 2000 ("Guidance Document") (see excerpt at Exhibit K).

[84] *Id.* at pgs. 4-11 through 4-13.

different from the control."[85] The proposed permit language would preclude this response because it would require the reporting of NOEC at the anomalous lower concentration. A NOEC definition that precludes a permittee from following the very guidance issued by the agency on the subject should not be allowed to prevail, and permittees should be afforded the opportunity to implement the guidance provided by the agency.

D. Definition of WET Limit Violation

Petitioner objects to and requests review of Part I, Item A.1 Whole Effluent Toxicity Limit and Part II, Item E.1.c of the Final Permit which establish that a single WET test demonstrating significant toxic effects constitutes a permit violation. Petitioner's initial comments on this issue are found at Petitioner's Comments pgs. 16-23 and the Region's response is found at RTC pgs. 45, 47-65.

The Final Permit provides that every test where the organism response at the critical dilution is statistically different from the organism response in the control is a permit violation. Petitioner commented that imposing a compliance requirement that every test must pass is inconsistent with the known variability of WET tests, particularly the 7-day *C. dubia* survival and reproduction tests. Such a provision imposes a standard that cannot be consistently achieved regardless of the diligence of the permittee. Petitioner provided examples of data from studies and laboratory analyses documenting the variability inherent in the testing method. Given such variability in an individual test result, Petitioner commented that it would be more appropriate to base compliance on the central tendency of the data collected through use of a median of all

[85] *Id.*

tests conducted over the preceding twelve-month period. Petitioner noted that the determination of permit compliance should not be based on an individual test result because of the high likelihood that any single test can be unrepresentative.

To support this argument, Petitioner discussed the results of the EPA Interlaboratory Variability Study[86] conducted by EPA from 1999-2000 wherein EPA split samples of a reference toxicant, an effluent, and a receiving water and sent the split samples to multiple laboratories. The laboratories reported a wide range of results for what should have been identical samples. For most sample and test endpoints of sublethal and lethal effects, approximately 30% of the labs reported a value that was outside the median value (the value reported by the majority of the labs which can be considered the correct value for the purposes of the study) for the test. In addition, Petitioner explained, when the test result was outside the median, it was much more likely to be less than the median, which would indicate a false positive than to be greater than the median, which would indicate a false negative. The Petitioner explained that such results indicate that permittees are significantly more likely to have a test indicate toxic effects when none truly exist (a false positive) than to have a test indicate no toxic effects when such effects are present (false negative).

Petitioner also discussed that the variability of the test can be observed by inspecting reference toxicant charts for labs conducting WET tests. At least once a month, a WET laboratory runs a WET test with a known toxicant in order to confirm that its organisms are responding within an acceptable range. The result of each test is then

plotted on a 24-month graph to indicate the normal range of variability for the laboratory. Petitioner included in its comments copies of two control charts for laboratories conducting WET testing and explained how such charts show that for both laboratories, the median concentration of toxicant that resulted in sublethal effects in the test organisms was approximately 600 mg/L, but depending on the laboratory and the specific month, individual test results ranged from 260 mg/L up to 890 mg/L, a difference of approximately plus or minus 50% of the median. Petitioner explained that the control charts confirm that while a median value of multiple tests may approximate a correct answer, any single test can be significantly wrong.

On this same subject of variability and why a single test result should not be deemed a WET limit violation, Petitioner also discussed the data maintained by EPA in the National Reference Toxicant Database and the review of such data by an independent study.[87] The WERF Report identified a wide range of variability of individual test results for sublethal toxicity based on test results in EPA's database. Similar widely distributed results were also observed for the test for lethality.

In conclusion, Petitioner commented that, given this wide testing range in variability of individual test results as documented in EPA's own data and other testing laboratory data, it would be more appropriate to base a permit violation on a median value over a 12-month testing period than on a single test result.

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[86] U.S. Environmental Protection Agency Office of Water, 2001 Final Report: Interlaboratory Variability Study of EPA Short-term Chronic and Acute Whole Effluent Toxicity Test Methods, Vol. 1. EPA 821-B-01-004 ("EPA Interlaboratory Variability Study").

In its RTC, the Region takes issue with Petitioner's interpretation of the results of the EPA Intralaboratory Variability Study, the example reference toxicant charts, and the WERF Report results. It argues that the range in test results found in the EPA Intralaboratory Variability Study is "analogous" to chemistry analysis at the method detection limit and that the results appear biased toward false positives only because the "variability observed below the detection limit cannot be quantified."[88] The Region also responds by arguing that false negative rates in the test are uncontrolled and can be far greater than 5%. It surmises that because other permittees in Region 6 "have not had problems" with a single value, rather than a median approach, Petitioner's Comment is not justified. It also argues that a median approach fails to take into account episodic toxic impacts that may be lost in a median calculation.

The Board should review the Region's decision to define WET limit violations on the basis of a single WET test failure rather than implementing a median approach because the Region's decision is an important policy consideration impacting many permittees with WET limits. Although the issue of how WET limits should be drafted is highly technical in nature, the Region's approach still must be rational and adequately explained and supported. Here, the Region's response does not meet this standard.

1. The Region's rejection of the use of a median approach to define a WET limit violation is not rational or adequately explained or supported because it supports, rather than refutes, Petitioner's position.

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[87] Warren-Hicks, Ph.D., William; Benjamin R. Parkhurst, Ph.D; and Song Qian Ph.D., *Accounting for Toxicity Test Variability in Evaluating WET Test Results.* Document No. 00-ECO-1.2006 ("WERF Report").

[88] RTC p. 49.

The Region's response to Petitioner's various arguments regarding the well-recognized variability of the test supports, rather than refutes, such variability. Its response analogizes variability found in WET tests to testing for chemical parameters at method detection limits. The Region notes that variability in WET testing is akin to the type of analytical chemistry variability "observed in low level analysis" because such analyses "often report higher inter-lab or inter-sample differences."[89] It is for this reason that such values should not be used to determine permit compliance. It should be applied in a median approach over a period of time. As previously noted, low-level chemical analyses near the method detection limit are not used to determine regulatory compliance. A more reliable "minimum quantification level" is used.

2. The Region's rejection of the use of a median approach to define a WET limit violation is not rational or adequately explained or supported because it fails to consider permittees who may have WET limits imposed for the first time based on the Region's revised WET policy.

The Region goes on to argue that the "lack of use . . . of a median approach has not been found to be problematic for any of the other Region 6 permittees with WET limits in their permits." It states that Region 6 states have not indicated any interest or requested revisions to the current approach regarding WET limit violations.[90] However, the Region fails to reflect upon the fact that most of the variability concerns discussed above relate to sublethal WET testing and that there are no permittees in Texas with sublethal WET limits, because, to date, Texas has not imposed sublethal WET limits based on sublethal WET data. TCEQ estimates that if the Region's preferred approach

[89] RTC p. 53.

regarding the imposition of WET limits is applied in Texas, a significant number of permittees will have WET limits.[91] Therefore, even though the Region may believe that WET limits based on a single test failure do not create controversy in the Region now, it may be facing a much different landscape in the future if an increase in sublethal WET limits in Texas occurs as its preferred approach would warrant. At least one other Region (EPA, Region 9) has approved a permit using a median approach to WET limits.[92]

3. The Region's rejection of the use of a median approach to define a WET limit violation is not rational or adequately explained or supported because it is not reasonable for the Region to impose a permit violation where a permittee may have no ability to control the cause or prevent future violations.

Finally, the Region argues that a median approach fails to take into consideration the periodic or episodic nature of toxic events that may impact a receiving stream. Based on its assumption that the period required for recovery of a stream from a toxic event can take up to a year or more, an annual averaging period could mask these longer-term impacts. However, this concern should be balanced against implementation of a permitting policy that triggers a violation for the type of toxic effect that can be meaningfully investigated and controlled by a permittee. For example, other provisions of the Final Permit setting forth the procedures for WET testing on the fathead minnow require the commencement of a TRE only after three out of four

[90] *Id.* pgs. 58-59.

[91] Discussion of EPA WET Policy at TCEQ's Surface Water Quality Standards Advisory Workgroup Meeting, Austin, Texas, June 2007.

monthly tests demonstrate toxic effects.[93] The reason for such a delay in instituting a TRE is to confirm that the toxicity is of sufficient duration that a meaningful investigation can be conducted. Without a meaningful investigation, identification of the cause of the reported toxicity does not occur, nor does control of such cause. Permit provisions that a single test failure is a permit violation place the permittee in a "Catch 22" of incurring a permit violation with no ability to identify the cause and prevent future occurrences because the toxic effects are too ephemeral. Such a WET limit based on a single test result is in no way an effective control against exceedance of TSWQS – it only serves to subject a permittee to fines and enforcement for a test result. As the Region has recognized that toxic effects should be of sufficient duration to warrant the institution of a TRE, so too should it recognize that a WET limit violation should be based on toxic events of a sufficient duration to give a permittee adequate opportunity for investigation and control activities.

E. Rejection of the Use of an IC_{25} Value

Petitioner objects to and requests review of Part I, Item A.1 at P. 2; Part II Item D; and Part II, Item E. imposition of 7-day NOEC of the Final Permit which require the use of NOEC rather than an IC_{25} value to report WET test results. Petitioner's comments on this issue are found at Petitioner's Comments p. 14 and the Region's response is found at RTC pgs. 37-39.

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[92] Cal. Reg. Water Quality Control Board, Order No. R2-2002-0097 NPDES Permit No. CA0037753, Sanitary District No. 5 Biburon, Marion County, September 18, 2002, p. 30, available at http://cfpub.epa.gov/npdes/permtissuance/genpermits.cfm.

[93] Final Permit, Item II. D.2.a.iii at p. 4.

The WET provisions contained in the Permit require the use of NOEC to determine test results and response actions. Petitioner commented that the use of the NOEC in calculating end points in WET testing relies on hypothesis testing techniques for statistical analysis. However, EPA guidance states that point estimation techniques, which produce inhibition concentrations (e.g. values such as IC_{25}), are the preferred statistical methods in calculating end points for effluent toxicity tests, rather than hypothesis testing techniques.[94] Petitioner noted that EPA guidance provides the option of using either NOEC or IC_{25} in reviewing and determining sublethal WET test results. Petitioner noted that the use of IC_{25} is preferable because it is less variable and provides a more robust analysis that is based on all of the test data.

In its RTC, the Region argues that NOEC test methods, rather than IC_{25} require a more robust analysis of WET test data, and that the use of NOEC is preferable due to the fact that one of the dilutions tested is the critical low-flow dilution designed to represent the critical instream flow conditions which ensures that information is developed at the actual instream dilution level as established by the State. Further, the Region explained its preference for NOEC because such analysis requires five replicates of each effluent dilution and, where the critical dilution allows for it, bracketing the critical dilution. Finally, the Region stated that had IC_{25} been used rather than

[94] Method Manual, p. 41, Section 9.5.1.; *see* also, U.S. Environmental Protection Agency Understanding and Accounting for Method Variability in WET Applications Under the NPDES Program, 833-R-00-003, 2000. Chapter 3, Section 3.4.1 states that "the greater variability of the NOEC underscores the desirability of using point estimates to characterize effluent toxicity." (Excerpt at Exhibit L). Inhibition Concentration is a point estimate of the toxicant concentration that causes an observable adverse affect, and is calculated by point estimate on techniques. The IC_{25} is the concentration of toxicant that causes 25% reduction in an endpoint such as biomass, growth, fecundity, or reproduction in the test population when compared to the control population response. As it pertains to WET tests for *C. dubia*, the IC_{25} is the effluent dilution causing a 25% reduction in reproduction in the test population when compared to the control population response.

NOEC in evaluating Petitioner's WET testing data, Petitioner would have "failed" more tests.

Like the definition of a WET limit violation, the choice between the use of NOEC and IC_{25} is a technical determination that involves an important policy consideration warranting review and must be shown to be rational and adequately explained and supported. The Region's response fails to meet these standards and also includes factual errors.

1. The use of NOEC rather than IC_{25} is not rational nor adequately explained or supported because, the use of the IC_{25} endpoint is the more technically rigorous approach.

IC_{25} is computed using the entire data set for the test. For the *C. dubia* test, the IC_{25} is computed using 50 values (comprised of the results for 10 replicates at five dilutions) whereas for NOEC the result for each dilution (which consists of 10 values: the 10 replicates) is independently compared to the control. What the Region fails to recognize in its argument is that the same test methods are used to determine NOEC and IC_{25}. It is only the manner in which the test data are statistically analyzed that is different. Therefore, the determination of what effluent dilutions to test and how many replicates to use is not dependent on whether NOEC or IC_{25} is reported. It should also be noted that the Method Manual and TCEQ WET testing protocols require a minimum of 10 replicates of each effluent dilution and not five.[95]

Overall, the IC_{25} endpoint provides reliable results more often than the NOEC endpoint, especially when the data set does not demonstrate an ideal dose–response

curve. The Guidance Document includes a chapter on "Concentration-Response Relationships." This chapter provides guidance on how to address dose-response curves that are not ideal. For at least three of the non-ideal response curves, the document states, "when this response pattern is encountered, point estimation techniques generally will yield reliable results, but hypothesis testing results should be interpreted carefully."[96] The IC_{25} is a point estimation technique, and NOEC is a hypothesis testing technique. Non-ideal responses occur relatively frequently. It is highly preferable that the results of these tests be determined based on an established, reliable protocol (i.e. calculation of IC_{25}) rather than a subjective determination of the appropriate NOEC.

Variability in WET testing is another regulatory concern that is best addressed by using the IC_{25} endpoint rather than a NOEC endpoint. EPA guidance notes that ". . . point estimates [such as IC_{25}] are substantially less variable than NOEC for the same method and endpoint," and "the greater variability of the NOEC underscores the desirability of using point estimates to characterize effluent toxicity."[97] The Region's response is inadequate in that it fails to recognize that the same test methods used for IC_{25} are used for NOEC and that IC_{25} values are superior to NOEC to address non-ideal dose-response curves and test variability, as acknowledged in EPA's own guidance.

2. The Region made a factual error in computing Petitioner's WET test results using IC_{25}.

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[95] Method Manual, p. 164 (Table 3, nos. 11-12).

[96] Guidance Document, pgs. 4-11; 4-13; 4-17.

[97] EPA WET Variability Document p. 3-10.

The Region asserts that if IC_{25}, rather than NOEC, is used to evaluate WET compliance, Petitioner would have reported more toxic effects than it would using NOEC based on its WET testing history. Petitioner cannot determine the basis for this statement. In fact, for data collected between September 2002 and September 2007, if the critical dilution were 69%, and a NOEC endpoint were used to determine whether each test passed or failed, 18 tests would be classified as "failures." If IC_{25} were used to determine whether each test is passed or "failed," only 8 tests would be classified as "failures."

F. E. coli Limit

Petitioner objects to and requests review of Part I, Item A.1. E. coli bacteria limit including footnote 6, pgs. 1-2 of the Final Permit which includes a limit for E. coli rather than a monitoring requirement. Petitioner's comments on this issue are found at Petitioner's Comments pgs. 6-8 and the Region's response is found at RTC pgs. 8-12.

The Final Permit includes a new limit for E. coli. The permit limit tables at Part I page 1 specifies a "30-Day Avg." limit of 126 cfu per 100 ml and a "Daily Max" limit of 394 cfu per 100 ml. Page 7 of the Fact Sheet notes that Segment 1008 has established numeric criteria for E. coli and states that this criteria is included as the limit in the permit. Page 7 states that the Plant, in the past, has been required to provide for bacteria control. Page 9 of the Fact Sheet states that Segment 1008 is listed on the 2004 Texas 303(d) List for bacteria.

Petitioner commented that, as described in the Application, the Plant disinfects the treated effluent prior to discharge to the receiving stream.[98] In accordance with both the 1989 NPDES Permit and the State Permit for the facility, the treated effluent maintains a minimum of 1.0 mg/L of total residual chlorine ("TRC") for 20 minutes (at peak flow) prior to dechlorination.[99] This minimum chlorine residual and detention time are accepted treatment practices for wastewater. Based on data provided in the Application, the geometric mean for fecal coliform in the effluent is less than 15 cfu per 100 ml,[100] indicating that the disinfection process is effective.

Petitioner further commented that the fact that Segment 1008 has specific criteria for bacteria assigned to it by the TSWQS does not, in and of itself, automatically require the implementation of an effluent limit for the same parameter. The TSWQS states that the geometric mean of E. coli should not exceed 126 cfu per 100 ml and the maximum single-sample concentration of E. coli should not exceed 394 cfu per 100 ml for all water bodies designated for contact recreation uses (not just Segment 1008).[101] However, TCEQ does not impose permit limits for bacteria on facilities that disinfect using chlorine (such as the Plant). No TPDES permit for a facility that achieves disinfection using chlorine requires E. coli monitoring or contains an E. coli limitation.[102] Only facilities that

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[98] See Application of San Jacinto River Authority for NPDES Permit, June 1, 2006 ("Application") at 2A, at p. 6 of 21 and Attachment 5.

[99] 1989 NPDES Permit at p. 2 of Part I; State Permit at p. 2.

[100] Application at Attachment 3. Fecal coliform concentrations in the three tests conducted for the Application were <10 cfu per 100 ml, 32 cfu per 100 ml, and <10 cfu per 100 ml. If 10 cfu per 100 ml is used as a conservative value for the two less-than results, the geometric mean of these three tests is 14.74 cfu per 100 ml.

[101] 30 Tex. Admin. Code § 307.7(b)(1)(A)(i)(2007).

[102] Telephone conversation with Firoj Vahora, TCEQ (R. Hunt; February 5, 2007).

disinfect with ultraviolet lamps are required to test for bacteria.[103] Therefore, there is no factual or legal basis for the simple conversion of the numeric criteria/standard for E. coli into a permit limit.

Petitioner also noted that the inclusion of Segment 1008 on the 2004 Texas 303(d) List does not mandate that bacteria limits be included in permits issued to facilities that discharge to that segment. The Implementation Procedures state that effluents that are disinfected prior to discharge are unlikely to result in degradation of the receiving waterbody due to increased loading of recreational indicator bacteria.[104] Accordingly, TCEQ does not include bacteria limits in permits based on 303(d) listing for bacteria. The Region provided no information or analysis in the Fact Sheet explaining how the proposed E. coli limit for WWTP No. 1 is necessary to maintain this criteria. In addition, Petitioner noted that Page 7 of the Fact Sheet is unclear regarding the statement that the facility "has in the past been required to provide for bacteria control."

The Region responds in the RTC that it is not bound by the Implementation Procedures. In addition, it notes that in the past TCEQ has not included monitoring requirements to verify that limits for bacteria standards are being met, and that it is inappropriate to use an indicator parameter (such as a chlorine residual) where the state has established a numeric standard for the parameter of concern under 40 C.F.R. § 122.44(d)(1)(i). The Region is concerned that disinfection methods are not foolproof, citing data of POTWs in other states that reported bacteria violations even when using a

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[103] Telephone conversation with Firoj Vahora, TCEQ (R. Hunt; February 5, 2007).

[104] Implementation Procedures at p. 33; third bullet in list.

chlorine disinfection method. Furthermore, the Region argues that because Segment 1008 is listed as impaired for bacteria, establishing a limit for E. coli is the "only way to guarantee compliance with the listed pollutant."

The Region's response should be reviewed by the Board because it fails to adequately address the comments raised by Petitioner; is legally flawed in that it fails to satisfy the requirements of applicable federal regulations and is a technical determination that lacks a reasonable foundation.

1. The Region's decision to include a limit for E. coli fails to consider Petitioner's comment that the effluent data contained in its permit application indicate that its disinfection process is effective.

As discussed in its comments, the data provided in Petitioner's permit application had a geometric mean fecal coliform of less than 15 cfu per 100 ml and a single grab sample concentration of 32 cfu per 100 ml.[105] It should be noted that the Region's application does not even require testing for E. coli, which is curious in light of the Region's apparent concern regarding the E. coli standard. The Region's Response completely fails to address this information and discuss why an E. coli limit would be necessary in light of such information.

2. The Region's decision to include a limit for E. coli is legally flawed because the Region failed to determine the level of the parameter that may be found in Petitioner's effluent prior to the establishment of a water quality based effluent limit in contravention of 40 C.F.R. § 122.44(d)(1)(i).

[105] Application at Attachment 3. Fecal coliform concentrations in the three tests conducted for the Application were <10 cfu per 100 ml, 32 cfu per 100 ml, and <10 cfu per 100 ml. If 10 cfu per 100 ml is used as a conservative value for the two less-than results, the geometric mean of these three tests is 14.74 cfu per 100 ml.

Here, the Region is only assuming that bacteria levels are significant enough in Petitioner's effluent to warrant a limit without review of *any* E. coli data whatsoever. The very language of 40 C.F.R. § 122.44 (d)(1)(i) requires some determination of the level at which a parameter may be found in effluent before a limit is set. This provision states that limitations are set for parameters "which the Director determines *are or may be discharged at a* level which will cause, have the reasonable potential to cause, or contribute to an excursion" (emphasis added). Under EPA's approach here, there is no determination of the parameter level in the discharge, just a simple conversion of a water quality standard to a permit limit which is not supported by the regulation.

3. The Region's technical determination regarding its decision to include a limit for E. coli lacks a reasonable foundation.

Only after effluent monitoring and data demonstrate that bacteria levels in Petitioner's effluent require control in order to maintain TSWQS should a limit be imposed. The Region has failed to demonstrate why Petitioner's effluent has the reasonable potential to exceed water quality standards for bacteria, thereby warranting a permit limit in accordance with 40 C.F.R. § 122.44(d). If the Region has a concern regarding bacteria levels given the listing of Segment 1008 as impaired for bacteria, it should impose a monitoring requirement and base any subsequent permit limits on the data that is collected.

G. Copper Monitoring Requirement

Petitioner objects to and requests review of Part I, Item A.1 copper monitoring of the Final Permit which includes a monitoring requirement for copper. Petitioner's

comments on this issue are found at Petitioner's Comments pgs. 9-10 and the Region's response is found at RTC pgs. 14-16.

The Final Permit requires monitoring for total copper. Page 7 of the Fact Sheet states that the data provided by Petitioner indicate that the concentration of total copper in the effluent exceeds 70% of the daily average effluent limit necessary to maintain TSWQS, thereby mandating a monitoring requirement. The Fact Sheet explains that the EPA permit writer used best professional judgment ("BPJ") in establishing the report requirement and based the decision on the fact that Petitioner's effluent data contained a single value exceeding this 70% threshold.

Petitioner commented that the Region is inappropriately replacing its previously approved policy of establishing monitoring requirements as found in the Implementation Procedures with individual BPJ. The Implementation Procedures clearly provide that, in establishing water quality based effluent limits and monitoring requirements, the "*average concentration* of the effluent data is . . . compared to the daily average limit" and if the "*average* of the effluent data equals or exceeds 70% but is less than 85% of the calculated daily average limit" monitoring is usually included as a permit condition for the parameter of concern.[106] Page 7 of the Fact Sheet states that EPA is replacing the clear policy established in the Implementation Procedures regarding use of the average concentration of the effluent data with the BPJ of the permit writer that a single value is sufficient to justify a monitoring requirement. Petitioner noted that the Fact Sheet provides no justification for use of a single value rather than the average

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[106] Implementation Procedures at p. 83 (emphasis added).

concentration as stated in the Implementation Procedures and that the Region should provide sufficient justification for deviation from the policy it previously approved as stated in the Implementation Procedures.

Petitioner explained that, generally, the use of BPJ by a permit writer is only specifically authorized by the Clean Water Act in certain instances such as in the drafting of technology-based limits for industrial dischargers where effluent limit guidelines are not yet available[107] and permit conditions governing sludge disposal prior to the promulgation of applicable federal regulations.[108] There is no legal authorization for the permit writer to replace clear written policy with his or her BPJ to establish a monitoring requirement for a water quality based parameter based on a single data point.

The Region responded in the RTC again noting the Implementation Procedures are not binding and again citing to its interpretation of 40 C.F.R. § 122.44(d)(1)(i) that it must control all pollutants that it determines may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard. The Region failed to respond at all to Petitioner's comments regarding the inappropriate use of BPJ as a basis to support the imposition of a monitoring requirement on a single sample. Rather, it switched its argument and stated that 40 C.F.R. § 122.44(d)(ii) specifies that EPA "use procedures which account for the variability of the pollutant or pollutant parameter in the effluent." According to the

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[107] 33 U.S.C, § 1342(a)(1)(B)(2001); 40 C.F.R. § 125.3 (2006); *see also* U.S. Environmental Protection Agency, EPA Permit Writer's Manual EPA Document No. EPA 833-B-96-003, December 1996; p. 68 (only discusses the use of BPJ in the context of technology based limits for industrial dischargers).
[108] 33 U.S.C.A. § 1345(d)(4) (2001).

Region's response, the monitoring requirement was then based on a single value in excess of 70% of the daily average value as a way for accounting for "effluent variability."

The Board should review the Region's determination regarding the copper monitoring requirement because the Region's response is based on an incorrect legal interpretation of applicable regulations and is a technical determination lacking a rational basis without adequate explanation and support.

1. The imposition of a copper monitoring requirement based on a single value is not mandated by 40 C.F.R. § 122.44(d)(ii).

The agency's regulations at 40 C.F.R. § 122.44(d)(ii) require the use of "procedures" that account for variability but do not specifically confirm that a monitoring requirement based on a single sample result is an adequate or reasonable procedure.

2. The imposition of copper monitoring requirement based on a single value lacks a rational basis without adequate explanation and support because it unreasonably imposes a monitoring requirement based on a single value without consideration of other available data.

The procedure used by the Region in this case is unreasonable because it ignores the other effluent data submitted by Petitioner. An appropriate procedure would be to utilize the approach described by the Region in its RTC in response to a query posed by Petitioner that it explain the methodology used to determine average concentrations for listed parameters where some of the data results are below the Minimum Analytical Level ("MAL"). The Region explained that when some effluent data are below the MAL, and others above the MAL (as is the case with copper samples

provided by Petitioner in its application), the process is to take one-half the MAL for those concentrations shown as below the MAL and calculate a geometric mean using the other concentrations for those samples above the MAL.[109] Using this approach, the resulting geometric mean for copper in Petitioner's effluent samples is 6.80 µg/L (39% of the daily average limit).

TCEQ employs a similar procedure in the Implementation Procedures. In establishing the need for permit limits and reporting requirements, the Implementation Procedures uses one-half the MAL when the data include results both above and below the MAL. The Implementation Procedures state that the average concentration of the effluent data is compared to the daily average limit. The Implementation Procedures do not address the type of averaging to be used. However, the TCEQ generally uses an arithmetic mean of data when analyzing copper results. The arithmetic mean of the data is 7.53 µg/L, or 43% of the daily average limit.

A more conservative approach to considering variability would be to assume the less-than-MAL values to have a value of the MAL (or 10 µg/L). When including this assumption, the geometric mean is 10.80 µg/L, or 61.5% of the daily average limit. The arithmetic mean is 10.87 µg/L, or 62% of the daily average limit. These values are still below the triggers for imposition of a monitoring requirement in the policies previously approved by the Region in the Implementation Procedures.

[109] RTC p. 7.

In addition, Petitioner has collected additional effluent samples since the filing of its Application.[110] A total of eight effluent samples have been analyzed for copper since May 2006, when samples were first collected in connection with the NPDES permit renewal application. The results of these tests are summarized in Table 1 follows:

Table 1: Copper Data

Date Sampled	Result (µg/L)
6/26/2007 (1)	<10.0
10/6/2006 (2)	8.52
10/4/2006 (2)	9.4
10/2/2006 (2)	9.16
7/3/2006 (2)	9.5
5/11/2006 (3)	<10.0
5/9/2006 (3)	<10.0
5/5/2006 (3)	12.6
Geometric Mean (4)	9.84
Arithmetic Mean (4)	9.90

(1) Analysis performed for the 2007 TPDES permit renewal application.

(2) Analyses performed pursuant to engaging sublethal toxicity investigations.

(3) Analyses performed for the 2006 NPDES permit renewal application.

(4) Geometric and Arithmetic means determined using available data, and using 10.0 µg/L to be the value for any result reported as <10.0 µg/L.

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[110] See Exhibit M, Laboratory Analyses Reports for samples listed in Table 1.

The three May 2006 results were the only ones available for the original NPDES application, which was submitted on June 2, 2006. The five additional sample results clearly demonstrate that the variability of the copper results is low, and that all results are very near the accepted MAL for copper of 10 mg/L. Even using the more conservative approach of using the MAL value as the concentration for samples reported as less than the MAL, average values for copper do not exceed the MAL. Certainly, both the geometric mean and the arithmetic mean are well below the 70% threshold for requiring monitoring.

With any of these alternative procedures, the issue of variability is adequately addressed because all data are utilized in the procedures of establishing a geometric or arithmetic mean. Therefore, any of these procedures are justifiable and appropriate. Since the calculated copper concentration does not exceed 70% of the daily average limit using these procedures, it is inappropriate to include a report requirement for copper in the permit.

H. Definition of 24-Hour Composite Sampling

Petitioner objects to and requests review of Part 1, Item A. 1. n. 4 p. 2; Part III, Item F.22.c p. 10 of the Final Permit which defines 24-hour composite sampling in a manner that fails to allow sampling time to vary according to flow. Petitioner's comments on this issue are found at Petitioner's Comments pgs. 26-27 and the Region's response is found at RTC pgs. 17-18.

The original Draft Permit required 12-hour, flow-weighted, composite samples for CBOD, TSS, and Ammonia Nitrogen analyses. The Draft Permit later defined the 12-

hour composite sample as consisting of 12 effluent portions collected no closer together than one hour with the sampling interval to include the highest flow periods of the day.

In its comments, Petitioner objected to these requirements on several grounds, including:

- Results based on 12-hour composite samples are less representative than results based on 24-hour composite samples.
- Petitioner's current State Permit requires monitoring for the same parameters and WET testing using 24-hour, flow-weighted composite samples and it is unnecessarily burdensome to have to collect two different types of flow-weighted composite samples.
- The objective of the sampling is to obtain a representative, flow-weighted sample over the sampling period which can be achieved either by collecting samples at equal time intervals and varying the volume of each sample based on the flow at the time of the sample (as with the method for the 12-hour sampling set out in the draft permit) or it can also be achieved by collecting equal-volume samples at time intervals proportional to flow. Petitioner uses automatic samplers programmed to collect flow-weighted composite samples using the second method. The frequency of sampling is proportional to flow in the plant. Each individual sample consists of a set volume. The interval of time between samples varies according to flow. The interval is shorter during higher flow periods and longer during lower flow periods. Petitioner noted that this procedure was established in consultation with EPA compliance

inspectors in April 2005 but would not be allowed under the provisions of the Draft Permit.

- It is physically impractical to adhere strictly to the requirement to collect 12 samples no closer than one hour apart during a 12-hour period, if interpreted literally. Time is required to collect each sample so the time between the end of one sampling event and the beginning of the next sampling event will always be less than 60 minutes. In addition, it is not practical for the operational staff to collect each sample exactly 60 minutes apart.

Petitioner noted in its comments that the State Permit provides a more flexible definition of the sampling requirement. It defines the required composite sample as a sample made up of a minimum of three effluent portions collected no closer than two hours apart in a continuous 24-hour period, combined in volumes proportional to flow.[111] This is a better approach than the approach in the Draft Permit. Petitioner requested that the Region adopt the definition contained in the State Permit for 24-hour composite sampling.

The Region responded in the RTC that NPDES and State Permits are "independent of each other" but concurred with the requested change to a 24-hour sampling regime for CBOD, TSS, ammonia-nitrogen and WET testing. However, the Final Permit still requires a minimum of 12 effluent portions collected at equal time intervals over the 24-hour period and combined proportional to flow. Therefore, these sampling requirements are still problematic in that they require the collection of portions

[111] State Permit at p. 4, Item 3.a.

over equal time intervals rather than allowing for Petitioner's current sampling regime of collecting equal-volume samples at time intervals proportional to flow.

The Board should review the Region's 24-hour sampling requirements because the Region failed to consider all issues raised by Petitioner in its comments. The Region fails to explain why sampling over equal time intervals is preferable to sampling at time intervals proportional to flow, which is the method approved by its inspectors in 2005 and why adequate sampling could not be performed based on the method currently used by Petitioner. Such an explanation is especially warranted given the burden that will be placed on Petitioner in meeting two different sampling protocols in its State and NPDES permit. The Region's requirement for a different sampling protocol is simply unreasonable.

In addition, Part III, Item F.22.c, p. 10 of the Final Permit provides a definition of a 24-hour composite sample that is in conflict with Part I, Item A.1, footnote 4, p. 2. The Part III definition allows samples to be "collected at frequent intervals proportional to flow over the 24-hour period." This alternative method of sampling is the method Petitioner previously established in consultation with EPA compliance inspectors, and is the method Petitioner currently uses. The permit should be remanded to eliminate this conflict by authorizing a protocol for collecting 24-hour composite samples that allows the use of protocols currently in use by Petitioner.

I. Failure to carry forward agreed changes regarding the (i) annual sludge report provisions, (ii) the critical dilution and (iii) definitions for reporting WET test results as discussed in the RTC to the Final Permit

Petitioner objects to and requests review of Part I, Item C.3 p. 4 of the Final Permit which includes provisions on annual sludge reporting; Part II, Item D.2.a.iii which includes provisions regarding institution of a TRE for fathead minnow WET testing and Part II, Item E.3.b. including definitions for reporting WET test results that were not revised in response changes the Region agreed to implement in its RTC. Petitioner's comments on these issues are found at Petitioner's Comments pgs. 27-28 (Annual Sludge Report) pgs. 8-9 (discussion of report requirement for Nitrate Nitrogen and Dibromchloromethane) and the Region's response is found at RTC pgs. 18-19 (Annual Sludge Report) pgs. 13-14 (critical dilution), and pgs. 41-43 (WET reporting definitions).

In its RTC, the Region agreed to modify the due date for the annual sludge report from February 19 in the Draft Permit to September 1 with a reporting period of August 1 to July 31 in the Final Permit. However, this change was not carried forward in the Final Permit issued by the Region. This provision should be remanded back to the Region to correct this clerical error.

Also in its RTC, the Region agreed to modify the critical dilution established for the facility from 86% to 69%. However, it failed to carry this change forward to all parts of the WET testing provisions. Because the Region deleted provisions for WET limits for the fathead minnow based on Petitioner's comments, it included new biomonitoring provisions for the fathead minnow in the final permit establishing the trigger for commencement of a TRE due to demonstrated sublethal effects. Part II Item D.2.a.iii of

the Final Permit states that if any two of three additional monthly retests performed after a quarterly test demonstrating significant toxic effects, demonstrate significant sublethal toxic effects at 75% effluent or lower, the permittee must institute a sublethal TRE. This value of 75% should be changed to 69% to reflect the revised critical dilution agreed to by the Region in its RTC.

Finally, the Region agreed to revise the terms "Daily Average Minimum NOEC" to "7-Day Minimum" and "30-Day Average Minimum" to "30-Day Avg." to correspond with terms used in Part I of the permit. However, Part II Item E.3b still contains the old terms and should be replaced.

All of these items should be remanded to the Region for correction in the Final Permit since they were resolved in the RTC, but inadvertently omitted from the Final Permit.

V. RELIEF REQUESTED

For the foregoing reasons, Petitioner requests that the Board grant this petition and conduct a review of the Final Permit conditions identified herein and remand such provisions to the Region for revisions consistent with this Petition. In the alternative, Petitioner requests that the Board remand to the Region those conditions for which the Region failed to provide an adequate response as discussed herein.

Respectfully submitted,

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Date: October 26, 2007

TABLE OF EXHIBITS

A. U.S. Environmental Protection Agency, Region 6, NPDES Permit No. TX0054186, issued September 28, 2007 ("Final Permit").

B. *Memorandum of Agreement Between the Texas Natural Resource Conservation Commission and the U.S. Environmental Protection Agency, Region 6 Concerning the National Pollutant Discharge Elimination System,* September 14, 1998 ("MOA").

C. Tex. Comm'n Env. Quality, Procedures to *Implement the Texas Surface Water Quality* Standards, RG-194, Revised January 2003 ("Implementation Procedures).

D. Tex. Comm'n Env. Quality, *Order Regarding Application by San Jacinto River Authority for Renewal of TPDES Permit No. 11401-001 in Montgomery County,* TCEQ Docket No. 2003-1213-MWD; SOAH Docket No. 582-04-1194 ("TCEQ Order").

E. State Office of Admin. Hearings, *Proposal for Decision*, SOAH Docket No. 582-04-1194 (TCEQ Docket No. 2003-1213-MWD) June 15, 2005 ("PFD").

F. U.S. Environmental Protection Agency, Region 6, Draft NPDES Permit No. TX0054186, EPA Region 6 ("Draft Permit") and accompanying Fact Sheet ("Fact Sheet") issued December 7, 2006.

G. Comments by San Jacinto River Authority Draft NPDES Permit No. TX0054186 Woodlands Wastewater Treatment Plant No. 1, February 19, 2007 ("Petitioner's Comments").

H. U.S. Environmental Protection Agency, Region 6, NPDES Permit No. TX0054186, Response to Comments, issued September 28, 2007 ("RTC").

I. U.S. Environmental Protection Agency Office of Water, Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-000, 2nd Printing, Appendix D ("TSD").

J. U.S. Environmental Protection Agency, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. Fourth Edition; October 2002 ("Method Manual").

K. U.S. Environmental Protection Agency, Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing, EPA 821-B-00-004, July 2000.

L. U.S. Environmental Protection Agency, Understanding and for Accounting Method Variability in WET Applications Under the NPDES Program, U.S.E.P.A.-833-R-00-003, 2000.

M. Laboratory Analysis Reports for Copper Sampling.